

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
26 August 2004 (26.08.2004)

PCT

(10) International Publication Number
WO 2004/072099 A3

(51) International Patent Classification⁷: **A61K 38/00**

(21) International Application Number:
PCT/US2004/003794

(22) International Filing Date: 10 February 2004 (10.02.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/446,255 11 February 2003 (11.02.2003) US

(71) Applicant (for all designated States except US): **THE UNITED STATES OF AMERICA** as represented by **THE SECRETARY OF HEALTH AND HUMAN SERVICES, NIH** [US/US]; Office of Technology Transfer, Suite 325, 6011 Executive Boulevard, Rockville, MD 20852 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **CLORE, Marius, G.** [US/US]; 7711 Winterberry Place, Bethesda, MD 20817 (US). **BEWLEY-CLORE, Carole, A.** [US/US]; 7711 Winterberry Place, Bethesda, MD 20817 (US). **MEDABALIMI, John, L.** [US/US]; 7212 Palomino Court, Olney, MD 20832 (US).

(74) Agent: **AUERBACH, Jeffrey, I.**; Liniak, Berenato & White, LLC, 6550 Rock Spring Drive, Suite 240, Bethesda, MD 20817 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

(88) Date of publication of the international search report:
24 February 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: NOVEL PEPTIDE INHIBITOR OF HIV FUSION THAT DISRUPTS THE INTERNAL TRIMERIC COILED-COIL OF GP41

(57) Abstract: This invention relates to a novel peptide inhibitor of HIV fusion that disrupts the internal trimeric coiled-coil of gp41, to a pharmaceutical composition that comprise this inhibitor, and to methods of treating immunodeficiency disease, especially HIV, that employ such a pharmaceutical composition.

WO 2004/072099 A3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/03794

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A61K 38/00

US CL : 514/12

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 514/12

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6,150,088 A (CHAN et al.) 21 November 2000 (21.11.2000), entire document, especially col. 10, lines 33-37 and 55-59 (modification/overlap of N36 or C34 of gp41 to create inhibitor of HIV).	1-7, 9-15, 17-18, 20
Y	US 2002/0077284 A1 (ECKERT et al.) 20 June 2002 (20.06.2002), entire document, especially paragraphs 0012, 0095 (variants of C34 to disrupt binding to N36 and thus inhibition gp41 (HIV) inhibitory activity).	1-7, 9-15, 17-18, 20

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"B" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"

document member of the same patent family

Date of the actual completion of the international search

15 November 2004 (15.11.2004)

Date of mailing of the international search report

Authorized officer

Maurice Audet

Telephone No. 572-272-0960

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US

Commissioner for Patents

P.O. Box 1450

Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

INTERNATIONAL SEARCH REPORT

PCT/US04/03794

Continuation of Box I Reason 2:

Claims 1-7, 9-15, 17-18, and 20 are objected to under PCT Rule 66.2(a)(v) as lacking clarity under PCT Article 6 because the claims are indefinite for the following reason(s): no searchable structure/sequence (i.e. corresponding to the claimed variants of known SEQ ID NO: 1) was claimed, thus only a general search of the invention as to these claims could be conducted.

Continuation of B. FIELDS SEARCHED Item 3:

East (USPTO-Internal Patent/Publication); STIC (USPTO) Sequence DB search of SEQ ID NOS: 1 (wildtype) and 3 (only SEQ's claimed; hand-entry search as CRF still not in compliance). Based on the prior art of record, and databases searched, it is noted that SEQ ID NO: 3 (substituted variant of SEQ ID NO: 1) was found to be free of the prior art.